

## Elastic Deployable Composite Tubular Roll-Out Boom, Phase I

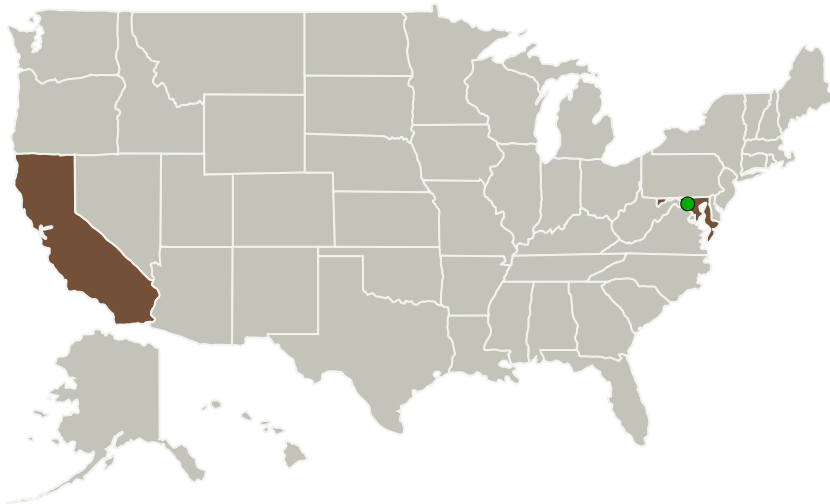
Completed Technology Project (2010 - 2010)



## Project Introduction

DSS's innovative Elastic Deployable Composite Tubular Roll-Out Boom will provide revolutionary performance when compared to conventional state-of-the-art technologies, and will significantly enhance operations and capability for future NASA missions. The proposed Roll-Out Boom is strong, stiff, lightweight, thin, scalable, compactly-stowed, and fabricated from ultra-lightweight composite materials. The Roll-Out Boom can be used as a self-deploying antenna, electric field antenna, linear actuator, grapple arm, gravity gradient boom, camera support, inspection aid, or as an actuator/structure for deploying payloads, antennas, solar arrays, instrument benches, solar sails, and sunshades. The Roll-Out boom is a very simple concept that integrates an innovative deployment synchronization system to provide controlled, reliable and repeatable deployments, to produce deployments always in a predictable/known direction. The Roll-Out Boom provides exceptional structural performance in a small lightweight package, and is a direct replacement to current state-of-the-art systems. Boom sizes envisioned can be from 0.5-inch to 12-inches in diameter (or greater), with lengths from 1-m to 50-m long (or longer). The significance of the proposed technology and program will enable future NASA and non-NASA missions by providing a revolutionary and positive performance impact to the end-user, and allow for the rapid insertion of this mission-enabling technology for future applications.

## Primary U.S. Work Locations and Key Partners



Elastic Deployable Composite  
Tubular Roll-Out Boom, Phase I

## Table of Contents

Project Introduction	1
Primary U.S. Work Locations and Key Partners	1
Project Transitions	2
Organizational Responsibility	2
Project Management	2
Technology Maturity (TRL)	3
Technology Areas	3
Target Destinations	3

## Elastic Deployable Composite Tubular Roll-Out Boom, Phase I



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Organizations Performing Work	Role	Type	Location
Deployable Space Systems, Inc(DSS)	Lead Organization	Industry	Goleta, California
● Goddard Space Flight Center(GSFC)	Supporting Organization	NASA Center	Greenbelt, Maryland

Primary U.S. Work Locations	
California	Maryland

## Project Transitions

**January 2010:** Project Start**July 2010:** Closed out**Closeout Documentation:**

- Final Summary Chart(<https://techport.nasa.gov/file/140001>)

## Organizational Responsibility

**Responsible Mission Directorate:**

Space Technology Mission Directorate (STMD)

**Lead Organization:**

Deployable Space Systems, Inc (DSS)

**Responsible Program:**

Small Business Innovation Research/Small Business Tech Transfer

## Project Management

**Program Director:**

Jason L Kessler

**Program Manager:**

Carlos Torrez

**Principal Investigator:**

Brian R Spence

**Co-Investigator:**

Brian Spence

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## Technology Maturity (TRL)

Start: **2**  
Current: **4**  
Estimated End: **4**



## Technology Areas

### Primary:

- TX08 Sensors and Instruments
  - └ TX08.2 Observatories
    - └ TX08.2.2 Structures and Antennas

## Target Destinations

The Sun, Earth, The Moon, Mars, Others Inside the Solar System, Outside the Solar System